UWO JPB Retreat Commodities Education

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Commodities Overview

What are commodities?

Commodities are real assets used as inputs to production

ENERGY	INDUSTRIAL METALS	PRECIOUS METALS	AGRICULTURE	LIVESTOCK
Crude Oil	Aluminium	Gold	Wheat	Live Cattle
Unleaded Gas	Copper	Silver	Corn	Lean Hogs
Heating Oil	Nickel		Soybeans	
Natural Gas	Zinc		Soybean Oil	
			Cotton	
			Sugar	
			Coffee	

Commodity universe

Over 50 commodities on various exchanges

HARD COMMODITIES			SOFT COMMODITIES		OTHER
ENERGY	**BASE METALS**	**PRECIOUS METALS**	**GRAIN, OILSEEDS, FOOD & FIBER**	**LIVESTOCK, MEAT & SOFTs**	**OTHER**
WTI Crude Oil Brent/BFO Crude Oil RBOB Gasoline Heating Oil Gasoil Diesel TOCOM Kerosene Natural Gas Coal Ethanol Propane Electricity	Copper Aluminum Aluminum Alloy Nickel Zinc Lead Tin Cobalt Molybdenum Steel	Gold Silver Platinum Palladium Uranium	Corn Wheat Barley Rough Rice White Rice Soybeans Oats Rapeseed Castor Oil Canola Oil Crude Palm Oil	Lean Hogs Pork Bellies Live Cattle Feeder Cattle Dairy (Milk, Cheese, Butter) Coffee Sugar Cocoa Cotton Orange Juice	Emissions Credits HD Polyethylene Polypropylene PVC Rubber Lumber Softwood Hardwood Freight Currencies

Exposure to commodities

- Holding Physical Commodity Inventories
  - Impractical for most investors
- Commodity Related Equities
  - Investing in companies that are active in commodity markets
- Collateralized Commodity Futures (CCF)
  - Diversified basket of futures
- Relative Value Trades
  - Trading spreads on individual commodity markets i.e. price differences in Chicago vs. Kansas wheat
- Private Natural Resources
  - Oil, natural gas, metals, minerals

Alternative means of obtaining commodity exposure

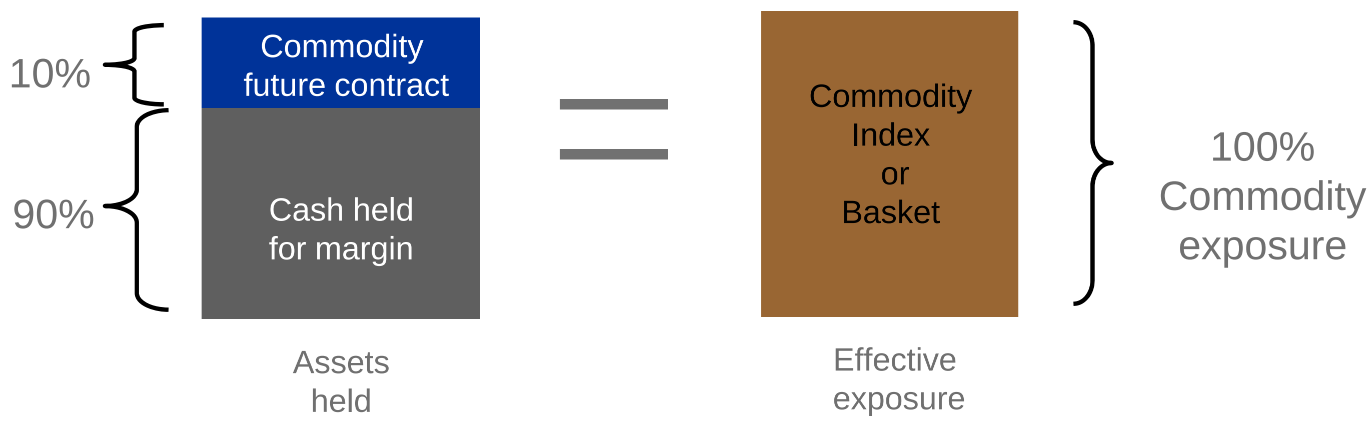
- Historically, Canadian investors have owned commodity-related equities in their portfolio
- The inclusion of commodities futures in a portfolio that already has exposure to commodity-related equities may help to diversify the inflation hedging and total return benefits of the portfolio
- Commodity futures typically have an extremely high correlation with underlying commodities prices, whereas commodity equities may, over time be influenced by other factors (such as management skills, geopolitical risks, hedging out of commodity price risk, global equity market beta, etc…)
- Over varying time frames, commodity futures have yielded higher returns than commodity equities, and vice-versa. A diversified mix of futures and equities may provide a high correlation to commodity prices and an improved total return over time

Source: Core Commodities LLC, January 2011

Commodity Futures

Collateralized commodity futures (CCF)

- Investment in a fully collateralized commodities futures index
- Illustrative example: Invest $1,000 in CCF
  - 10% margin ($100) applied to purchase of commodity future contract
  - $100 = exposure of $1,000 of target commodity
  - Remaining 90% ($900) invested in cash or other liquid investment to meet margin call



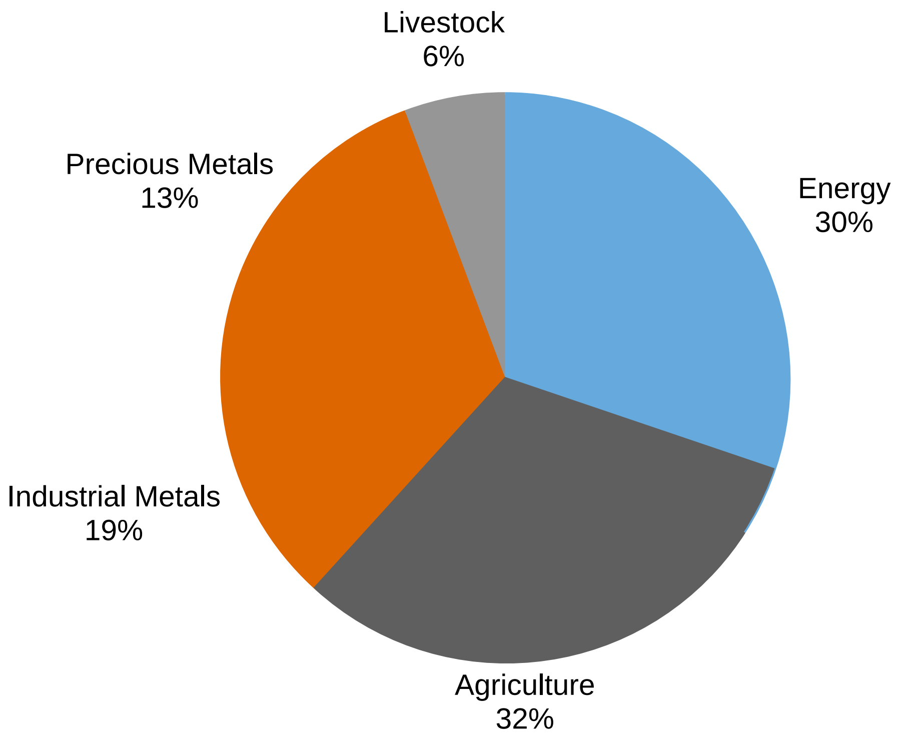
Russell Investments

Dow Jones - UBS Commodities Index

A few structural basics:

- Highly liquid and diversified
- Annual rebalance; weights based on production and liquidity
- Commodity futures contracts rather than physicals
- Price change of futures while in Index is "spot return"
- As contracts approach expiration, they are replaced ("rolled") by similar contracts with later expiry
- "Roll yield" can be positive or negative and affects the Index value
  - positive when markets in "backwardation" – futures prices lower in distant delivery month
  - negative when markets in "contango" – futures prices higher in distant delivery month
- Therefore, Index can be negative when prices of underlying commodities are rising, and vice versa

Dow Jones UBS Commodity Index℠ Allocation



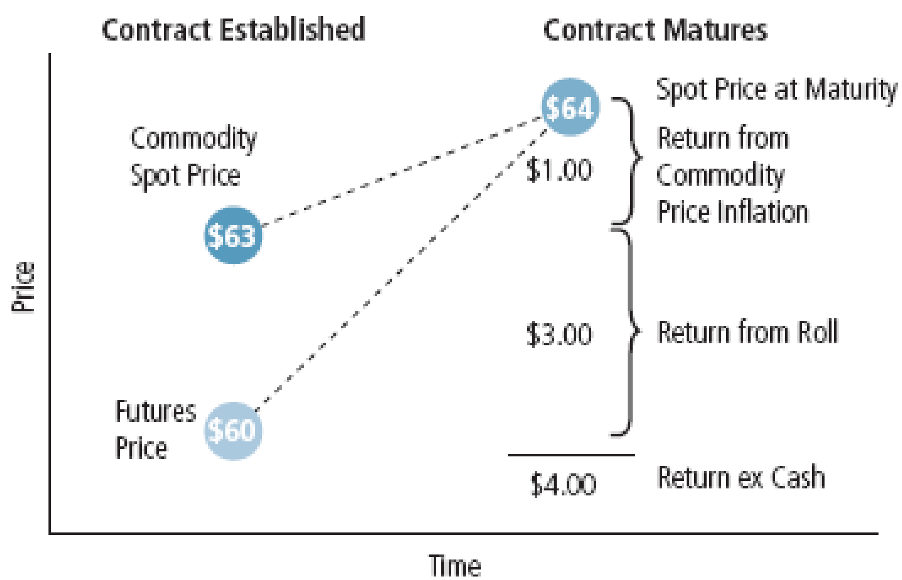
Indexes are unmanaged and cannot be invested in directly. Allocation data is as of June 2011. Current data may be different.

Backwardation vs. contango

Side-by-side comparison

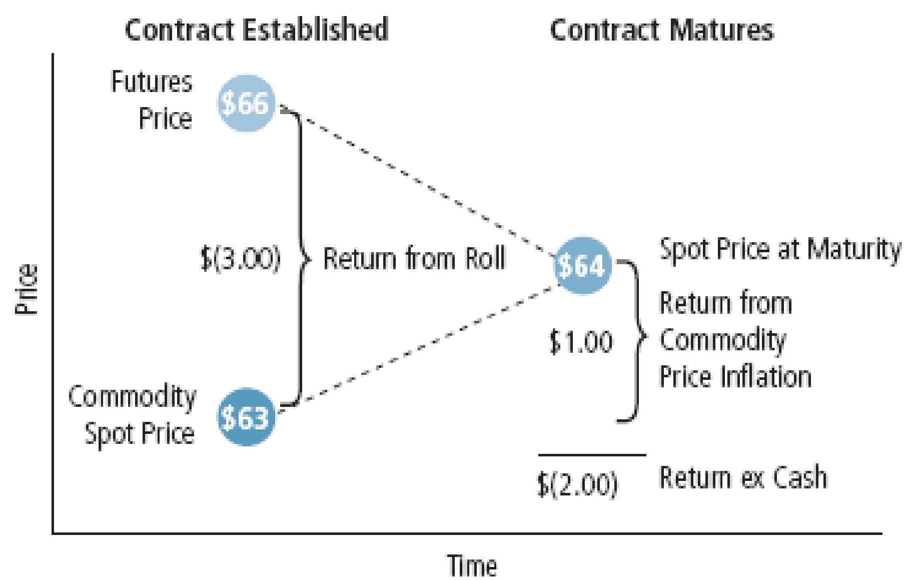
Backwardation

Futures purchased at discount
result in positive roll return



Contango

Futures purchased at premium
result in negative roll return



Source: CalSTRS, “Research Report on Commodities: Investments – Innovation & Risk”, February 2010; Wolf International

Risks

Commodities Risks	› Volatile returns › Contango*
Market risks	› Weather, geopolitical and macroeconomic risks
Credit risk	› Related to collateral management
Manager-specific risks	› Investment staff and organizational stability risks
Index investing in commodities	› Inflexible exposure to “front month” contracts** › Implementation hurdles

* Contango – Where commodities futures term structure is upward sloping and rolling the futures will produce a drag on returns.
** Front month contracts - The shortest duration contract that could be purchased in the futures market.

Commodity manager alpha sources

- Fundamental-Biased
  - Commodity-linked company/industry insights
  - Trading/hedging flows
  - Supply/demand analysis (United States Department of Agriculture (USDA), International Energy Agency (IEA), Energy Information Administration (EIA)
- Systematic Trading
  - Momentum, price trends
  - Trading stops/limits
  - Tactical use of cash
  - Minimal use of discretionary trading

The Big Picture Case

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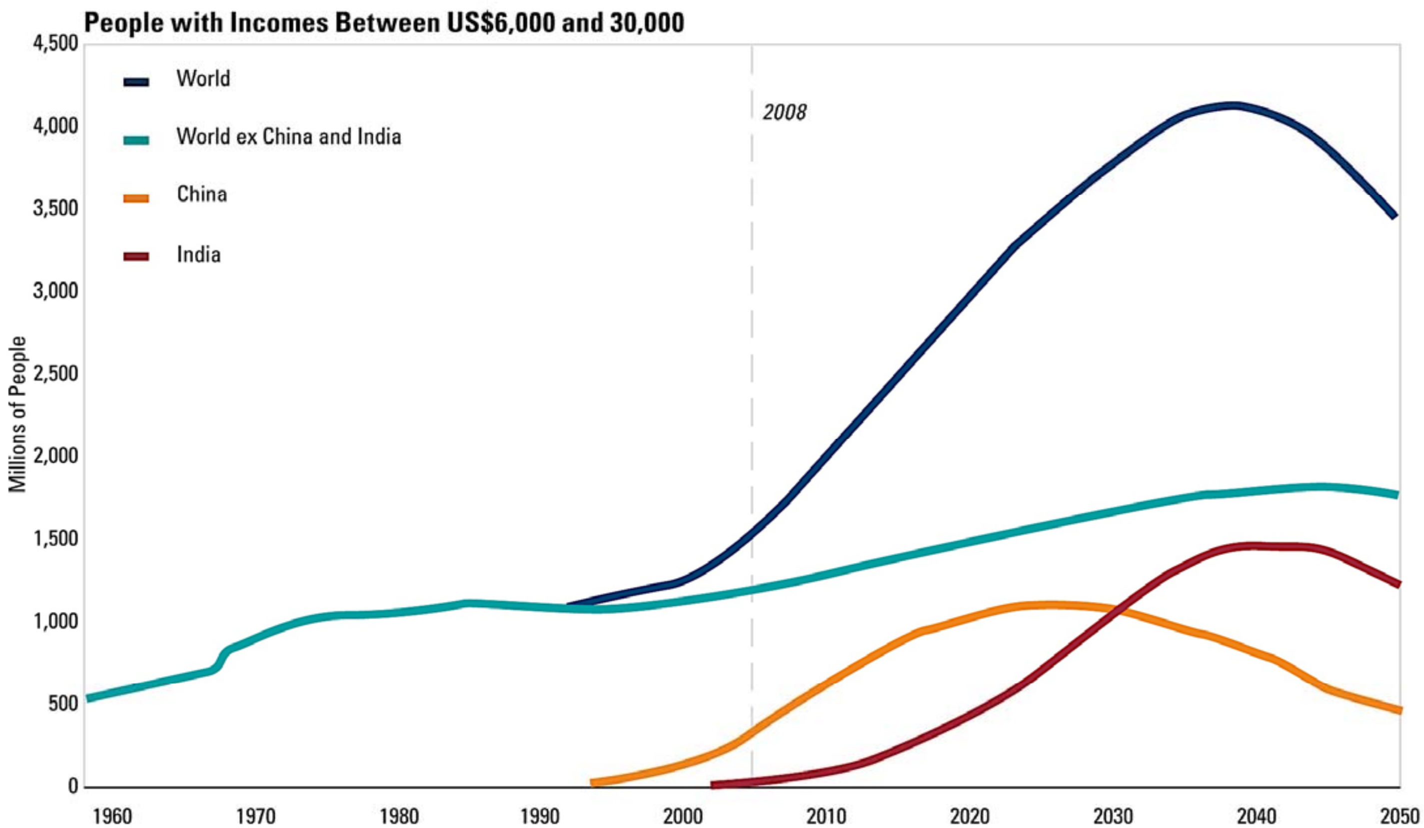
Demand for natural resources and commodities

Rising middle class / urbanization remain key driver of resource demand



Source: Goldman Sachs

Historical data is not indicative of future results.
Forecasting represents predictions of market prices and/or volume patterns utilizing varying analytical data. It is not representative of a projection of the stock market, or of any specific investment.
Data in chart as of July 2008.

ECONOMIC GROWTH IS A PRIORITY FOR LEADERS OF EMERGING COUNTRIES

Aspiring middle class demands growth from leaders….

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+

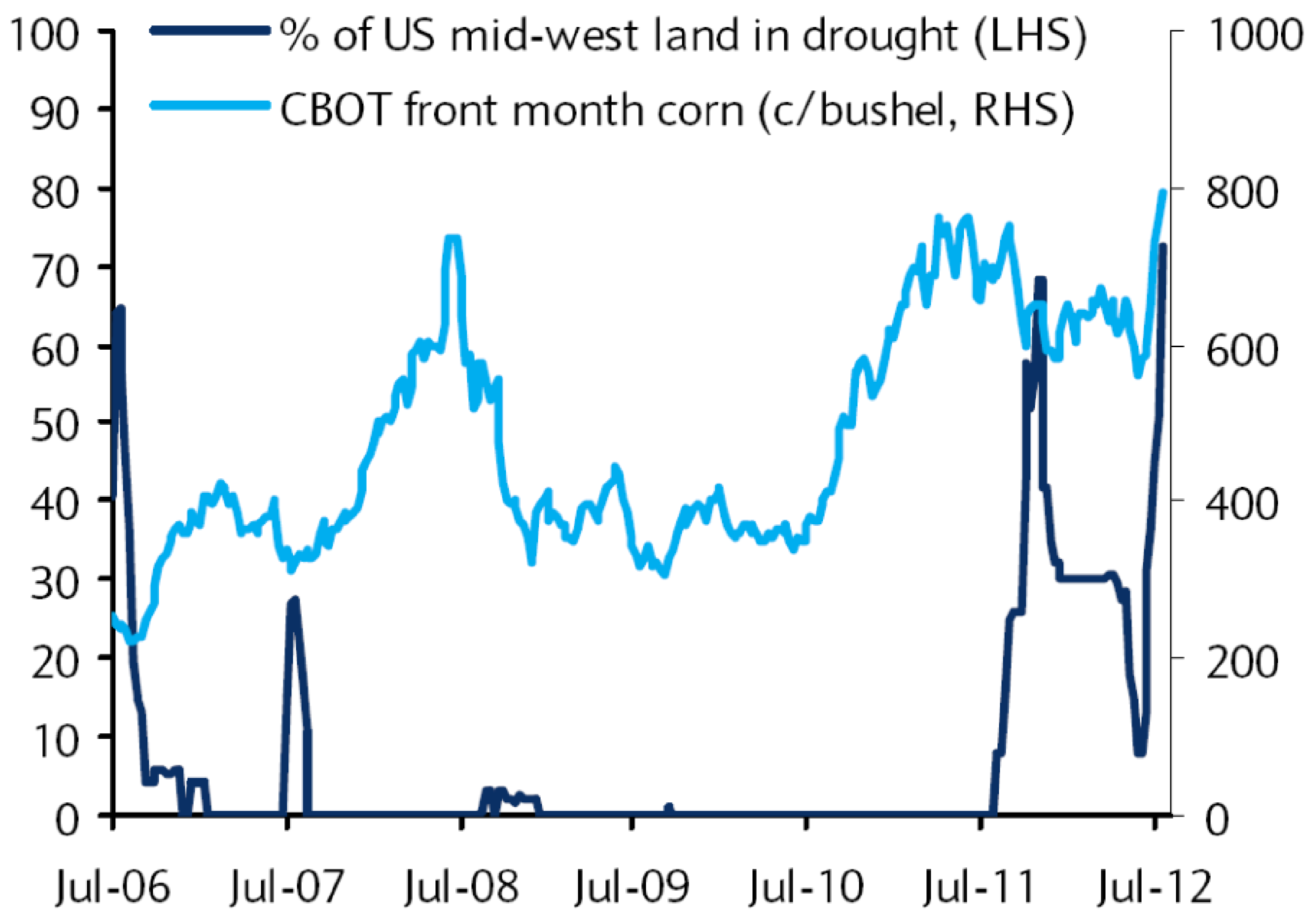
+

=

sustained demand pattern for commodities

While demand gets the attention, don't forget supply

Worst US drought in recent times is driving corn prices to all-time highs



Source: NIDIS, Ecowin, Barclays Research; Barclays Commodities Research (Cross Currents: July 18, 2012)

Commodities in the Portfolio Context

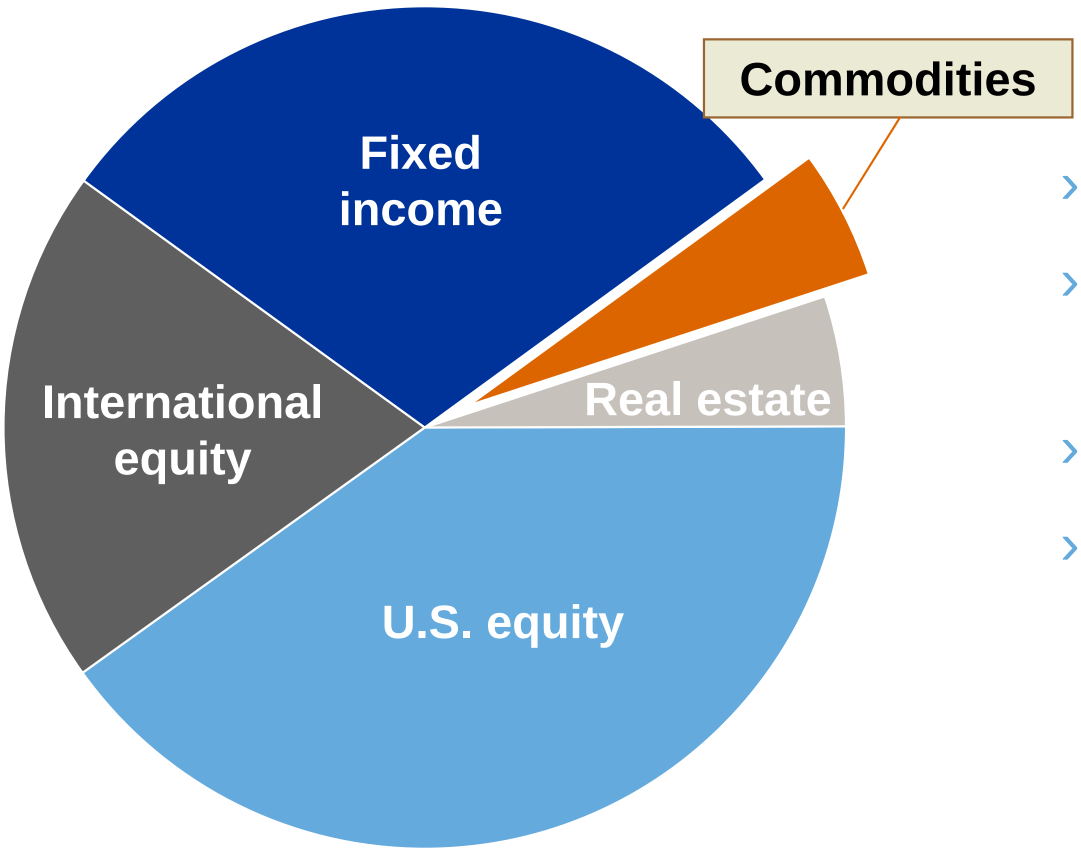
Active Commodities Investing

Commodities in the portfolio context

	RETURN SEEKING ASSETS				HEDGING ASSETS
	Equities	Fixed Income	Marketable Real Assets	Alpha Driven Strategies	Fixed Income and IR Derivatives
Asset Categories	Global US Non-US Emerging Markets Large/Small/ Micro Cap Growth/Value Styles	Global US High Yield Non-Dollar Emerging Markets	REITs **Commodities** Listed Infrastructure	Hedge Funds Private Equity **Commodities** Real Estate Infrastructure	Corporate bonds Treasury bonds IR Swaps IR Futures
Strategies	Passive Enhanced index Active Concentrated Long/Short	Passive Active Core Core Plus	Passive Active	Fund Of Funds Direct Exposure	Passive Active Overlay
Investment Vehicle	Commingled Separate Accounts **Equity of Commodity Company**	Commingled Separate Accounts	**Exchange Traded Fund** **Collateralized Commodity Futures** **Direct Holding (physical commodity)**	Commingled ('40 Act Funds) Limited Partnerships **Direct Holding (physical commodity)**	Commingled Limited Partnerships

IR = Interest Rate; REIT = Real Estate Investment Trust

Portfolio diversification



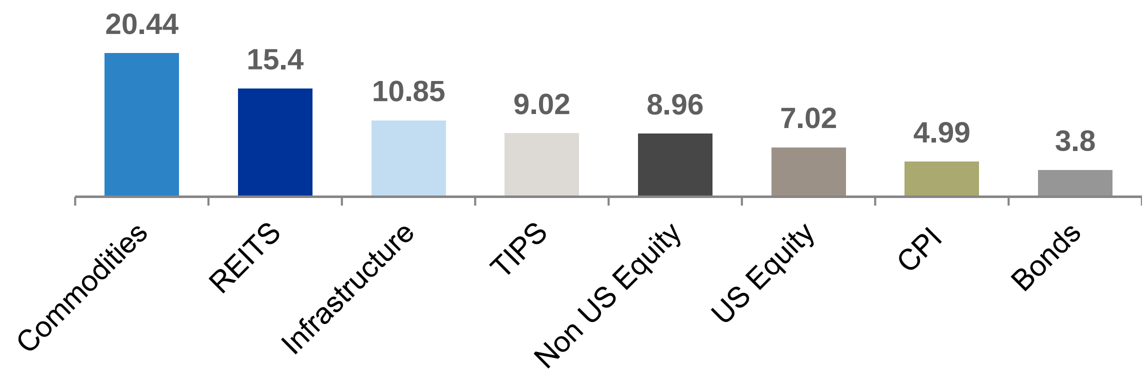
- Alternative sources of diversification and growth to traditional assets
- Long-term return potential
- Typically viewed as an inflation linked asset
- Globally focused
- When included as a small part of a well-diversified portfolio, commodities aim to lower the portfolio's overall long-term volatility

Commodities may provide inflation protection relative to financial assets

- Participants are concerned about inflation
- Real Assets are not an inflation hedge

  …but may enable a participant to achieve a consistent real return over inflation over the long term

Performance (%) during periods of rising inflation 1997-2011 (Annualized)[1]



"Hit Rate" of various asset classes' ability to outperform CPI +3%[2]

	Equities	Bonds	Real Assets	60/40 Eqty/Bonds	60/40 Eqty/Bonds + Real Assets
Rolling 3 years	59.3%	73.1%	71.8%	62.0%	64.8%
Rolling 5 years	52.6%	72.4%	69.8%	66.7%	75%
Rolling 10 years	63.6%	92.4%	100.0%	75.0%	89.4%

[1] High inflation is, by our definition, when CPI is greater than 0.7% for a given quarter. This analysis looked at average quarterly returns, determined which quarters met the definition of high inflation and then annualized returns from 1997 to 2011, as defined above.
[2] Table indicates percentage of periods of outperformance for the rolling annualized periods from 1997 to 2011.
Source: FTSE EPRA/NAREIT Developed RE Index Net (performance prior to 9/30/07 linked to FTSE NAREIT Equity REITs Index); Dow Jones UBS Commodity Index TR, S&P Global Infrastructure Index Net, Russell Developed Large Cap Index Net, Russell 3000 Index, Barclays Capital U.S. Aggregate Bond Index, Barclays Capital US TIPS Index (Series L)
Indexes are unmanaged and cannot be invested in directly. Past performance is not indicative of future results.
Periods greater than one year are annualized.
Real assets represents the Russell real asset model allocation of 22.5% global listed infrastructure, 22.5% global real estate, 25% TIPS and 30% commodities. The 60/40 portfolio is represented by the Russell 3000 Index and Barclays US Aggregate Bond Index. The 60% equity /40% bond portfolio plus real assets has a 15% allocation to the Russell real asset model allocation.

Russell Investments

New source of diversification while reducing portfolio volatility

Historical: 4/1992 – 3/2012	**Annualized Return**	**Annualized Standard Deviation**
Equities: Russell 3000® Index	8.7%	15.3%
Fixed: Barclays US Aggregate Bond Index	6.6%	3.7%
Commodities: Dow Jones – UBS Commodity Index Total Return	5.5%	15.3%
60% Equities / 40% Fixed	**8.2%**	**9.4%**
56% Equities / 40% Fixed / 4% Commodities	**8.1%**	**9.0%**

Russell Capital Market Forecasts 20 year time horizon, as of March 31, 2012*	**Annualized Return Assumption**	**Annualized Standard Deviation Assumption**
US Equity	7.8%	19.4%
US Aggregate Fixed Income	4.0%	4.2%
Global Commodities	5.2%	16.6%
60% US Equity / 40% US Aggregate Fixed Income	6.3%	13.3%
56% US Equity / 40% US Aggregate Fixed Income / 4% Global Commodities	6.2%	13.3%

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* Please see following page for important information about the data shown above.

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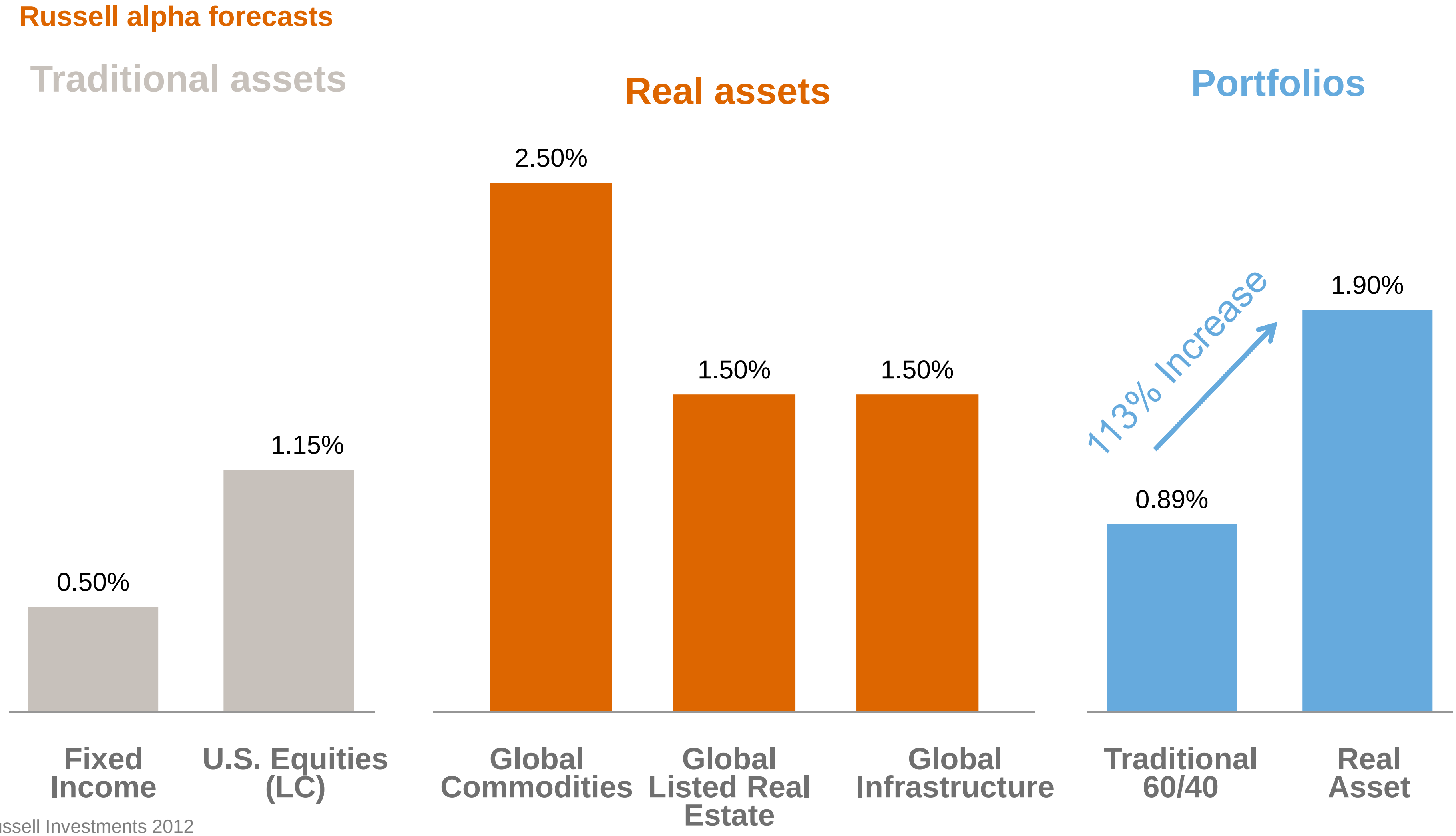
Commodities provide higher alpha generation potential



Source: Russell Investments 2012

Please note all information shown is based on assumptions. The long-term expected excess returns employ proprietary projections of the active return potential of each asset class. We estimate the long-term excess return of an asset class or strategy by analyzing current market conditions and historical market trends. It is likely that actual returns will vary considerably from these assumptions, even for a number of years. References to future returns for either asset allocation strategies or asset classes are not promises or even estimates of actual returns a client portfolio may achieve. Asset classes are broad general categories which may or may not correspond well to specific products. Additional information regarding Russell's basis for these assumptions is available upon request. Opinions and estimates offered constitute our judgment and are subject to change without notice, as are statements of financial market trends, which are based on current market conditions. This material is not intended as an offer or solicitation for the purchase or sale of any financial instrument. The views and strategies described may not be suitable for all investors.

Participant expenses in retirement

Income replacement target determined by expenses

Health Care	8.94%
Household Operations	2.15%
Reading and Education	1.63%
Shelter	25.85%
Apparel and Services	3.53%
Entertainment	6.74%
Transportation	27.00%
Utilities	8.52%
Food	15.66%

25.8% of expenses directly related to real estate

51.2% of expenses directly related to commodities

Source: Aon Consulting/Georgia State university "Replacement Ratio Study" 2008

Why Consider Commodities?

Russell Investments

Active Commodities Investing

Why consider commodities?

- Commodities offer:
  - strong diversification potential to traditional asset classes – both now and going forward may lower the portfolio's overall long-term volatility
  - a long-term relationship with inflation that may make them a beneficial component of a well diversified portfolio
  - the opportunity to participate in global trends that offer long-term return potential
  - significant alpha generation potential

Q&A

Russell Investments